

Claims

- [001] A dishwasher (1) comprising a wash tub (2) in which the dishes to be washed is placed, a sump (3) which is in the lower section of the wash tub (2), where the water present in the wash tub (2) is collected during washing operation, a circulation pump (4), driven by an electric motor with variable rpm, turning the water in the sump (3) back to the wash tub (2), a drain pump (5) which drains the water collected in the sump (3) at the end of the washing operation out of the dishwasher (1) and a filter (6) preventing the dirt from getting into the circulation during washing and thus decreasing the effectiveness of washing, **characterized by** a control card (7), tracing the change of the current (I) drawn by the circulation pump (4) from the network, determines the effects such as rotor blocking, pump felt sticking, filter (6) clogging and increase of the viscosity or the amount of foam in the washing water that influence the washing performance negatively, and provides the solution by changing the rpm and/or direction of rotation of the circulation pump (4).
- [002] A control method for a dishwasher (1) as in Claim 1 comprising the steps of determining that the rotor is blocked or its rotation is disturbed due to sticking of the pump felt or jamming of a solid piece when it is determined by the control card (7) that the current (I) drawn by the circulation pump (4) from the network suddenly increases and exceeds a limit current value (I_{max}) or that the motor stops completely, in order to solve this problem, with the start-up current (I_0) enabling the circulation pump (4) to shift from inoperative position to the operating position making start-up attempts of a previously specified number (n) in the positive rotation direction and making n start-up attempts in the positive rotation direction by increasing the torque with a current higher than the start-up current (I_0), if no success is obtained, making n start-up attempts in the negative rotation direction with the start-up current (I_0) and making n start-up attempts in the negative rotation direction by increasing the torque with a current higher than the start-up current (I_0).
- [003] A control method for a dishwasher (1) as in Claim 1 comprising the steps of deciding that the dirt and oil getting into the washing water increases the viscosity of the washing water when the increasing deviation of the current (I) drawn by the circulation pump (4) from the network with respect to nominal current (I_{nom}) is observed by the control card (7), deciding that the washing water is not suitable if the gradually increasing current (I) exceeds a certain limit current value (I_{max}), letting the circulation pump (4) continue its operation at low rpm after it is decided that the viscosity of the washing water is increased,

- draining the washing water and taking clean water if it is decided that the washing water is not suitable according to the variation of the current (I) amount.
- [004] A control method for a dishwasher (1) as in Claim 1 comprising the steps of deciding that the filter (6) in the sump (3) is partly clogged and the circulation pump (4) sucks air-water mixture when it is detected by the control card (7) that the current (I) drawn by the circulation pump (4) from the network fluctuates within a proper range, taking some water into the sump (3), lowering the rpm of the circulation pump (4) until the value where it can operate without absorbing air and continuing with the washing operation.
- [005] A control method for a dishwasher (1) as in Claim 1 comprising the steps of deciding that the amount of foam in the washing water prevents the circulation pump (4) from proper operation when it is detected by the control card (7) that the current (I) drawn by the circulation pump (4) from the network fluctuates within an interval gradually decreasing or increasing, or when waves with high amplitudes are observed, decreasing the rpm of the circulation pump (4) until the current fluctuations are lowered to a preset level and thus it is provided that the foam remains above the sucking level of the circulation pump (4) in the sump (3) and continuing of the washing operation with the circulation pump (4) sucking enough water.
- [006] A control method for a dishwasher (1) as in Claim 1 comprising the steps of deciding that the filter (6) is clogged completely and the water level in the sump (3) has decreased since the washing water can not pass to the sump (3), when a decreasing change of the current (I) drawn by the circulation pump (4) from the network with respect to nominal current (I_{nom}) is detected by the control card (7), taking some water into the dishwasher (1) and lowering the rpm of the circulation pump (4) and continuing with the normal washing operation, deciding that the filter (6) can not be cleaned in the normal cycle if it is determined that the drawn current (I) does not return to normal, draining the water completely, taking clean water and making it pass through the filter (6) thus washing the filter (6) and draining the water.